PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

ENOMOTO, Jun, et al.

Reissue of
U.S. Patent No. 5,982,407

Confirmation No.: Not Yet Assigned

Group Art Unit: Not Yet Assigned

Filed: Herewith

Examiner: Not Yet Assigned

For: COLOR PRINTER

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please enter the following amended claims:

1. (Amended) A color printer for printing an image on photosensitive material, comprising:

means for modulating the intensity of a [laser beam] light with image data of one color, said modulator means having at least one micromirror array having a plurality of micromirrors disposed in line, wherein each of said micromirrors includes a first tilt state, a second tilt state and a horizontal state;

means for driving said modulator means to control a tilt of each of said micromirrors, said driver means driving during red exposure said modulator means in accordance with red image data to control a tilt of each micromirror, said driver means driving during green exposure said modulator means in accordance with green image data to control a tilt of each micromirror,

and said driver means driving during blue exposure said modulator means in accordance with blue image data to control a tilt of each micromirror;

a red light source for striking said modulator means at a predetermined angle of incidence and illuminating said modulator means with red color light during the red exposure, said red light being disposed on a first line corresponding to said predetermined angle of incidence;

a green light source disposed downstream from said red light source along said first line corresponding to said predetermined angle of incidence for striking said modulator means at said predetermined angle of incidence and illuminating said modulator means with green color light during the green exposure;

a blue light source disposed downstream from said green light source along said first line corresponding to said predetermined angle of incidence for striking said modulator means at said predetermined angle of incidence and illuminating said modulator means with blue color light during the blue exposure; and

a projector optical system disposed in a second line corresponding to a first predetermined angle of reflection from said modulator means, for projecting red, green, and blue color light reflected from micromirrors of said modulator means which are disposed in said first tilt state onto the photosensitive material.

7. (Amended) A color printer for printing an image on photosensitive material, comprising:

means for modulating the intensity of a [laser beam] light with image data of one color, said modulator means having at least one micromirror array having a plurality of micromirrors disposed in line each capable of being controlled to tilt;

means for driving said modulator means to control a tilt of each of said micromirrors, said driver means driving during red exposure said modulator means in accordance with red image data to control a tilt of each micromirror, said driver means driving during green exposure said modulator means in accordance with green image data to control a tilt of each micromirror, and said driver means driving during blue exposure said modulator means in accordance with blue image data to control a tilt of each micromirror;

a red light source for striking said modulator means at a predetermined angle of incidence and illuminating said modulator means with red color light during the red exposure, said red light being disposed on a first line corresponding to said predetermined angle of incidence;

a green light source disposed downstream from said red light source along said first line corresponding to said predetermined angle of incidence for striking said modulator means at said predetermined angle of incidence and illuminating said modulator means with green color light during the green exposure;

a blue light source disposed downstream from said green light source along said first line corresponding to said predetermined angle of incidence for striking said modulator means at said predetermined angle of incidence and illuminating said modulator means with blue color light during the blue exposure; and

a projector optical system disposed in a second line corresponding to a first predetermined angle of reflection from said modulator means, for projecting red, green, and blue color light reflected from said modulator means onto the photosensitive material; and

a white light source disposed downstream from said blue light source along said first line corresponding to said predetermined angle of incidence for striking said modulator means at said predetermined angle of incidence and illuminating said modulator means with white light to record a monochrome image.

12. (Amended) A color printer for printing an image on photosensitive material, comprising:

a modulator which modulates the intensity of a [laser beam] light with image data of one color, said modulator including at least one micromirror array having a plurality of micromirrors, wherein each of said micromirrors includes a first tilt state, a second tilt state and a horizontal state;

a driver which drives said modulator to control a tilt state of each of said micromirrors, said driver driving during red exposure said modulator in accordance with red image data to control a tilt sate of each micromirror, said driver driving during green exposure said modulator in accordance with green image data to control a tilt state of each micromirror, and said driver driving during blue exposure said modulator in accordance with blue image data to control a tilt state of each micromirror.

14. (Amended) A color printer according to claim [13] 12, [wherein said red light source is] further comprising:

a red LED unit for illuminating said modulator with red light during the red exposure; [,]

[said green light source is] a green LED unit for illuminating said modulator with green light during the green exposure; [,] and

[said blue light source is] a blue LED unit for illuminating said modulator with blue light during the blue exposure.

15. (Amended) A color printer according to claim [13] 14, wherein said modulator includes N micromirror arrays, wherein N is a natural number, the micromirrors being disposed in a matrix.

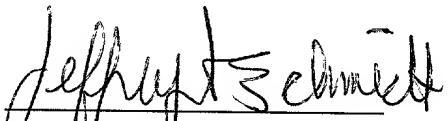
17. (Amended) A color printer according to claim 16, wherein said valid reflection state [is along said second line corresponding to said first predetermined angle of reflection from said modulator, along which] causes said red, green, and blue light [are reflected] to reflect toward the photosensitive material.

18. (Amended) A color printer according to claim 17, wherein said invalid reflection state [is along a third line corresponding to a second predetermined angle of reflection from said modulator, along which] causes said red, green, and blue light [are reflected] to reflect toward a light absorption material.

REMARKS

Entry and consideration of this Amendment is respectfully requested. This Preliminary Amendment broadens claims 1, 7, and 12 by changing "a laser beam" to --a light--, as a laser beam is not required for practice of the present invention. Because this is a broadening reissue application, wherein all changes relative to the original patent are shown by brackets and underlining, a separate Appendix—showing the claims with markings to indicate changes—is not submitted herewith. An early and favorable action on the merits is respectfully requested.

Respectfully submitted,



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STATEMENT OF STATUS & SUPPORT FOR CHANGES TO THE CLAIMS PURSUANT TO 37 C.F.R. § 1.173(c)

Commissioner for Patents
Washington, D.C. 20231

Sir:

Claims 1-20 are all the claims that are pending in this application. Claims 1, 7, 12, 14, 17, and 18, have been amended. The following is a statement of status and support for changes to the claims, pursuant to 37 C.F.R. § 1.173(c).

Independent claims 1 and 7 have been amended to change the "means for modulating the intensity of a laser beam" to --means for modulating the intensity of a light--. Similarly, independent claim 12 has been amended to change the "modulator which modulates the intensity of a laser beam" to a --modulator which modulates the intensity of a light--. Support for these changes can be found at least at column 2, lines 23-45, wherein one embodiment of the invention is described in connection with "light" sources. More specifically, light from the the light sources is incident on the spatial light modulartor means which is driven in accordance with image data to control a tilt of each micromirror and to project the light reflected from the spatial light modulator means upon a photosensitive material. That is, the invention is described broadly in terms of "light", wherein a "laser" is unnecessary.

Dependent claim 14 has been amended to depend from claim 12, and so as to recite light sources that are LED units. Support for these changes can be found at least at column 4, lines

40-45, wherein one embodiment of the invention is described as including a red LED unit 11, a green LED unit 12, and a blue LED unit 13, as the light sources for illuminating the digital micromirror device 10. Also, one embodiment of the invention is described as activating the red, green, and blue, light sources during respective red, green, and blue, exposure times, wherein there is no particular order to the exposure times. See, for example, column 4, lines 57-65.

Dependent claims 17 and 18 have been amended to make their language consistent with the cange in dependency of claim 14 from claim 13 to claim 12. Support for this change can be found at least at column 4, lines 12-25, column 5, lines 53-64, and column 6, lines 6-14, wherein the specification describes that when a micromirror is in the valid reflection state, light is reflected to a photosensitive material, whereas when a micromirror is in an invalid reflection state, light is reflected to a light absorption plate.

Respectfully submitted,

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